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ABSTRACT

This pamphlet contains the standards and requirements approved by the New Jersey State Records Committee on May 13, 1981, which bring the microfilm quality-control standards into conformity with national standards. Standards and guidelines are established for the selection of records to be microfilmed, the selection of equipment and vendors, the security duplication of microfilm records, and the quality of the microfilming, processing, duplication, and storage processes. The major points included in the new standards are (1) requirement for targets at the beginning and end of each roll of microfilm; (2) establishment of a minimum and maximum allowable density; (3) establishment of minimum allowable resolution standards; (4) performance of the methylene blue test once each month to determine if residual thiosulfate concentration falls within acceptable limits; (5) storage of master negative rolls under archival conditions; (6) completion of ED-6 forms listing microfilmed records with a signed certificate of compliance with these standards; and (7) use of updatable microfiche systems only under special circumstances. A sample form letter notifying the Bureau of Archives and History of intention to microfilm a series of records and eight samples of "targets" are included. (CHC)

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MICROFILM STANDARDS

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Adopted by the
State Records Committee

Bureau of Archives & History
Division of State Library, Archives & History

New Jersey State Department of Education
Trenton, N.J.

July 1981

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INTRODUCTION

On May 13, 1981, the State Records Committee approved the enclosed revisions to section 6:66 of the New Jersey Administrative Code. Microfilm quality-control standards have thus been brought into conformity with national standards. This pamphlet contains those standards and requirements.

The regulations establish standards and guidelines for: 1) the selection of records to be microfilmed, 2) the selection of equipment and vendors, 3) the security duplication of microfilm records, and 4) the quality of the microfilming, processing, duplication, and storage processes.

These regulations take effect on July 9, 1981. After July 9, 1981, authorization will not be given to dispose of records that have been microfilmed unless the state standards have been met and certification of this is attached to the "Request and Authorization for Records Disposal" (form ED-6). A sample of the required certificate is included.

In summary, the major points included in the new standards are:

A. All roll microfilm must have the required targets at the beginning and end of each roll.
B. A minimum and maximum allowable density is established. A transmission densitometer must be used to determine density.
C. Minimum allowable resolution standards are established. A microscope must be used to determine resolution.
D. The methylene blue test must be performed once each month to determine if residual thiosulfate concentration falls within acceptable limits.
E. The master negative roll of microfilm must be stored under archival conditions. It is not to be used except for producing copy rolls.
F. ED-6 forms listing microfilmed records must be accompanied with a signed certificate of compliance with these standards.
G. An updatable microfiche system is to be used only under special circumstances. The system must meet all microfilm specifications. Each time the microfiche is updated, a new certificate of authenticity must be added, the microfiche copy must be reproduced on silver halide film, and the expunging equipment must be rendered inoperative.

Also included herewith are samples of the targets required to be placed on all microfilm. Resolution charts may be obtained from:

Office of Standard Reference Material
Chemistry Building, Room B-311
Washington, DC 20234
(301) 921-2045

Any questions concerning these standards and requirements, or the development of microfilm projects should be directed to:

Supervisor of Microfilm Services, Education
Bureau of Archives and History
New Jersey State Library
CN 520
185 West State Street
Trenton, New Jersey 08625
(609) 292-6250

MICROFILM STANDARDS

(Per Administrative Code 6:66-3.10-17)

1a. Standards For Microfilming Local Public Records: Purpose

These microfilm standards have been designed to promote uniformity and quality in the production of microfilm for state, county and municipal governments in New Jersey. All agencies engaged in microfilming government records must meet these standards to insure the following:

i. that microfilm copies contain all significant detail shown on the original record;
ii. that microfilm copies are usable and legible reproductions of the original record;
iii. that the microfilm reproduction will have the same acceptability and legal status as the original;
iv. that the microfilm reproduction will meet standards of archival quality.

b. Authority To Establish Microfilm Standards

Concerning the photographic reproduction of public records, N.J.S.A. 47:3-26 provides that: "The Bureau of Archives and History in the Department of Education, with the approval of the State Records Committee established by section six hereof, shall formulate standards and procedures for the photographing, microphotographing and microfilming of public records and for the preservation, examination and use of such records, including the indexing and arrangement thereof, for convenient reference purposes."

2. Notice To Bureau Of Archives And History Of Intention To Microfilm Local Public Records

If, after considering all of the above factors, a particular record series is selected to be microfilmed, notice should be given to the Bureau of Archives and History of such intention specifying the record series involved. Such notification will give the Bureau's technical staff an opportunity to make constructive recommendations should such be necessary. This will also insure proper conformance with the statute.

3. Microfilm Standards

The following standards must be met before permission to destroy the originals is granted:

a. Since many factors are involved in the use of microphotography for records management, a careful analysis of each record group should be made before microfilming. Following are some of the most important factors in determining which records are to be filmed.
   i. Retention period and volume are perhaps the most important aspects to consider. Since microfilming is not inexpensive, only records in large volume with retention periods of seven years or longer should be considered. Records of shorter retention but of such volume or use that storage becomes a problem would be an exception to this rule.
   ii. Rate and reference to records: records with high reference rates or unusual methods of indexing may be poor subjects for microfilming.
   iii. Physical make-up of the records series: size, color, legibility and condition can affect the cost and quality of the microfilm.

b. When converting documents to microfilm, certain measures must be followed to insure quality, legality and access to information contained on the microfilm.
   i. The records to be filmed must be arranged, identified and indexed to insure reasonable ease in locating individual documents.
   ii. All roll film must have the following targets at the beginning of the reel: density targets; National Bureau of Standards' resolution target; certificate of authenticity; title target containing title of records filmed, filmed start file and end file (if known), reduction ratio, camera type, film type, department or agency having custody of the records.
   iii. All roll film will have the following targets at the end of each reel: density targets; National Bureau of Standards' resolution target; and operator's certificate.

iv. Where applicable, roll film should contain retake and correction targets.
v. Examples of the above targets are available from the Bureau of Archives and History

c. The master negative is the original reel of film produced.
i. Only a safety-base, permanent record film with a gelatin-silver halide emulsion, developed to a black and white image and meeting the standards of the American National Standards institute: PH 1.28, PH 1.29, and PH 1.41, will be used for copies of records.
ii. For most documents, optimum density should read 1.0 to 1.20 for original first generation camera film. Acceptable standards will fall between a minimum of 0.80 and a maximum of 1.35. The supervisor must use judgment to determine the most suitable density within this range for the documents being filmed. To permit a more accurate reproduction of the original roll, each image should maintain, as far as possible, a specific density throughout the roll. Since the color of the original documents will affect the density of the image, and not all documents in a particular record series may have the same color, an average density aim point should be chosen.
iii. A density minimum reading taken from the non-image or clear area of the film will not exceed a reading of 0.12 or manufacturer's specifications using automatic retrieval systems. Readings should be made close to the center of the film strip to avoid edge fog interference.
(Note) Both background density and D-min density must be taken with a transmission densitometer.
iv. A microscope having a magnification of 50X to 150X with achromatic objectives must be used to read the resolution from the National Bureau of Standards' microcopy resolution test chart. The line direction method will be used in making the determination of resolution. A minimum resolution of 80 lines per millimeter on rotary cameras and 110 lines per millimeter on planetary cameras must be obtained on first generation camera film.
v. Thiosulfate residual content should be tested at least once a month. Only the methylene blue test method will be considered sufficiently reliable to determine archival quality.
American National Standards Institute: PH 1.28 of 1973 states the following levels of thiosulfate concentration that must be observed for archival microfilm:

Limits for Thiosulfate Concentration

Classification of Films according to graininess of developed image	Maximum permissible concentration of Thiosulfate Ion (S_2O_3) in micrograms per square centimeter
Class 1 Fine-grain copying, duplication and printing films (includes ordinary microfilms)	0.7
Class 2 Medium-grain continuous-tone camera films (negative and reversal) and coarse-grain x-ray films	2

vi. A target indicating the beginning and end of retakes must be used. Retakes may be placed at the beginning or end of a roll of film and, when possible, in sequence. When computer-assisted or random retrieval methods are used, retakes may be placed on the following roll without retake targets. Placement of retakes should be decided before the start of filming and remain consistent.

vii. Splices should be kept to a minimum: no more than four splices per roll will be accepted. When splicing images in proper sequence within the roll, only heat-weld splicing will be considered archival. Splicing tapes may be used for splices at the beginning and end of a roll.

viii. All film will be processed to meet National Bureau of Standards' PH 4.8. Dry chemical processing will not be acceptable. Film failing to meet the specified limits for thiosulfate concentration will not be acceptable.

ix. All film must be inspected for proper indexing, density, resolution and, for residual thiosulfate. Film should be free of scratches, abrasions, blemishes or other defects.

d. The original roll of film must be maintained in archival storage when the records contain information essential to the continuity of governmental operations and the protection of the rights of individuals. Any irreplaceable records having a retention period classified as permanent should be included in this category. When film is to be cut for jackets or aperture cards, the original roll may be used provided an uncut duplicate roll of silver halide film has been prepared for storage. American National Standards Institute requires film specifications for archival storage PH 1.28, PH 1.25 and PH 1.41. The following specifications must be followed for archival storage:

i. The relative humidity of the storage vault or room must not exceed 40 percent.

ii. Temperatures must not exceed 70 degrees F.

iii. Rapid and wide-range cycling of humidity or temperature must be avoided and in no instance exceed +/-5 percent in a 24-hour period.

iv. No rubber bands, tape or other foreign objects may be used to hold film on the reels.

v. The materials used for storage should not ignite, decompose, or develop reactive fumes or vapors.

vi. Film must be stored in a closed container of such inert material as metal or plastic.

vii. At every two-year interval, a one percent random sample must be inspected. For each biennial inspection, a different lot sample should be chosen with some samples of the previous lot reinspected. Any signs of deterioration noted must be reported to the Bureau of Archives and History. Look for signs of peeling emulsion, brittleness, molding and blemishes.

e. Methods of duplication include the use of silver halide, diazo and vesicular film.

i. Silver halide duplication film is the only duplicating film considered suitable for producing microfilm of archival quality. Silver halide film must be used when producing copies of the original master negative intended for archival storage. Although the cost is high compared to other types of duplicating film, both negative and positive copies can be produced.

ii. Diazo duplication film is not considered archival in quality and must not be used to produce master-negative copies of originals. A diazo copy will maintain the same polarity as the original master (negative to negative; positive to positive). Unexposed diazo film has a very short shelf life unless refrigerated. After exposure and processing, diazo film has an estimated usability of twenty years under ideal storage conditions. Diazo film is less expensive than silver halide film and very durable.

iii. Vesicular duplication film is not archival in quality and must not be used to produce master-negative film. Vesicular film is a reversing process film—the polarity of the copy will be reversed to that of the original master (positive to negative, negative to positive) through exposure and processing by heat. Vesicular film should be only used for short-term storage applications. However, when not fully exposed, vesicular film may develop eye-legible, cosmetic blemishes. Vesicular duplication film may also be considered suitable for distribution or working copies when archival quality is not a factor.

4. Service Contract Specifications and Technical Assistance

A county or municipality may wish to have its microfilming done by a private company on a service contract basis.

In considering any such arrangement, the contracting agency should be cognizant of the following points:

1. All contracts must meet the microfilm specifications established by the State Records Committee.
2. The State Microfilm Supervisor will serve as a consultant to any county or municipality requesting such consultation, and/or will, upon request, review the microfilm service contracts prepared by local agencies.

5. Disposal Of Original Local Public Records After Microfilming

a. No original records may be destroyed after microfilming unless the agency obtains permission to do so from the Bureau.

b. Form ED-6, Request and Authorization for Records Disposal, as set forth in Section 3.15 (Form ED-6) of this Chapter, may be used for this purpose. Signed certification shall accompany the form stating that the listed records have been microfilmed in accordance with the rules and regulations of this subchapter and that with the creation of these microfilm copies, the original records have ceased to have sufficient value to warrant their rentention.

6. Updatable Microfiche Systems

An updatable microfiche system is to be used only in special applications. Any agency considering using such a system should first contact the Supervisor of Microfilm Services, Education to review the proposed application. The updatable microfiche must meet the microfilm specifications as outlined in section 3.11 with the following additions:

a. Each microfiche must have the specified targets at the beginning and ending of each microfiche.

b. Each time a microfiche is updated a certificate of authenticity must be inserted at the end of the added documents.

c. If permanent records are to be microfilmed and the hard copy records destroyed the microfiche security copy must be on silver halide film and stored under archival conditions.

d. The expunging equipment on the updatable microfiche camera must be rendered inoperable or the hard copy of the microfilmed records may not be destroyed.

(Use *YOUR* letterhead)

Head, Bureau of Archives and History
New Jersey State Library
CN 520
185 West State Street
Trenton, New Jersey 08625

Dear Sir:

I hereby certify that the records listed on the attached Request and Authorization for Records Disposal form[s] have been microfilmed in accordance with the microfilm specifications listed in section 6:66 of the New Jersey Administrative Code.

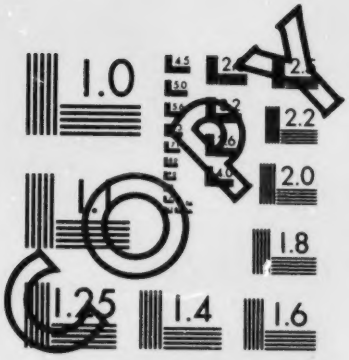
_____ _____

Supervisor, Microfilm Unit Date

_____ _____

Head of Agency or Designate Date

BACKGROUND DENSITY TARGET



You may order Microcopy Resolution Test Charts from:

Office of Standard Reference Material
Chemistry Bldg., Rm. B311
Washington, D.C. 20234
(301) 921-2045

(Use *YOUR* letterhead)

CERTIFICATE OF AUTHENTICITY

This is to certify that the microphotographs appearing on this roll of microfilm are complete and accurate reproductions of the original records and have been microfilmed in the normal course of government affairs. They meet the requirements of the State Records Committee concerning "the photographic reproduction of public records,"—Approved under N.J.S.A. 47:3-26.

It is the expressed intent and purpose of this government agency to destroy or otherwise dispose of the original records microphotographed herein. This destruction or disposition of the records on this reel is only to be accomplished after inspection of the microfilm to insure completeness of coverage.

Date: _____

Authorization:

_____
Signature

_____
Signature of Microfilm Supervisor

_____
Signature of Camera Operator

(Use *YOUR* letterhead)

TITLE TARGET

TITLE OF RECORDS: _____

_____

_____

FIRST RECORD: _____

LAST RECORD: _____

FILMED FOR (use name of agency): _____

REDUCTION RATIO: _____ FILM TYPE: 16mm _____ 35mm _____

TYPE CAMERA: _____ CAMERA NUMBER: _____

ROLL

_____

CAMERA OPERATOR'S CERTIFICATE

DATE FILMED _____ REEL NUMBER _____

THESE RECORDS WERE FILMED FOR (name of agency): _____

_____

RECORDS TITLE _____

NUMBER OF IMAGES _____

INDEXING DATA

BEGINS WITH
ENDS WITH

MISSING DOCUMENTS

CAMERA NUMBER _____

The above records were microfilmed by the (name of agency)

_____

I hereby certify that the microphotographs appearing in this reel of film are true and accurate copies of the original documents described above.

_____

Signature of Camera Operator

END

OF

RETAKES

CERTIFICATION

THE MICROPHOTOGRAPHS APPEARING BETWEEN "START OF RETAKES" AND "END OF RETAKES" ARE TRUE COPIES OF THE ORIGINAL DOCUMENTS WHICH ARE ILLEGIBLE OR WERE OMITTED DURING THE FILMING.

_____

Signature of camera operator

Agency: _____

_____

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CORRECTION

PRECEDING IMAGE HAS BEEN REPEATED TO ASSURE LEGIBILITY OR TO CORRECT A POSSIBLE ERROR

—NOTE—

CASE #_____

NOT IN FILE AT
TIME OF
MICROFILMING

REMARKS: _____

_____

_____

_____

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